## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TRANTY (PCT) (19) World Intellectual Property 10/537385

Organization
International Bureau



## THE REPORT OF THE PROPERTY OF

(43) International Publication Date 22 July 2004 (22.07.2004)

**PCT** 

(10) International Publication Number WO 2004/061969 A1

(51) International Patent Classification<sup>7</sup>: 51/40

\_\_\_\_

H01L 29/22,

(72) Inventors; and

(21) International Application Number:

PCT/US2003/021916

(22) International Filing Date:

15 July 2003 (15.07.2003)

(25) Filing Language:

**English** 

(26) Publication Language:

English

(30) Priority Data:

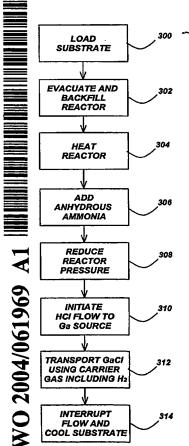
60/433,844 60/433,843 16 December 2002 (16.12.2002) US 16 December 2002 (16.12.2002) US

(71) Applicant (for all designated States except US): THE REGENTS OF UNIVERSITY OF CALIFORNIA [US/US]; 1111 Franklin Street, 12th Floor, Oakland, CA 94607 (US).

- (75) Inventors/Applicants (for US only): HASKELL, Benjamin, A. [US/US]; 724 Kroeber Walk, #207, Goleta, CA 93117 (US). FINI, Paul, T. [US/US]; 218 West Mason Street, Santa Barbara, CA 93101 (US). MATSUDA, Shigemasa [JP/JP]; 3-19-1-212 Hyakunin-cho, Shinjuku-ku, Tokyo 169-0073 (JP). CRAVEN, Michael, D. [US/US]; 68 1/2 Deerhurst Drive, Goleta, CA 93117 (US). DENBAARS, Steven, P. [US/US]; 287 King Daniel Lane, Goleta, CA 93117 (US). SPECK, Jame, S. [US/US]; 947 West Campus Lane, Goleta, CA 93117 (US). NAKAMURA, Shuji [JP/US]; 4517 Vieja Drive, Santa Barbara,
- (74) Agent: GATES, George, H.; Gates & Cooper LLP, 6701 Center Drive West, Suite 1050, Los Angeles, CA 90045 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

[Continued on next page]

(54) Title: GROWTH OF PLANAR, NON-POLAR A-PLANE GALLIUM NITRIDE BY HYDRIDE VAPOR PHASE EPITAXY



(57) Abstract: Highly planar non-polar a-plane GaN films are grown by hydride vapor phase epitaxy (HVPE). The resulting films are suitable for subsequent device regrowth by a variety of growth techniques

CA 93110 (US).